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# POPE LEO XIV'S SOCIAL QUESTION: AI, HUMAN DIGNITY AND LABOUR JUSTICE

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**Abstract**

The fourth industrial revolution (also known as Industry 4.0) forms the context in which Pope Leo XIV articulates the social question and identifies the challenges that artificial intelligence (AI) unleashes upon the principles that spearhead the evangelising mission of the Church as God's family. In singling out "human dignity, justice and labour" as key evangelical principles, Leo XIV signals a return to Leo XIII, for whom the dignity of the worker, by extension the dignity of work, compelled him to address the social question of his time. However, Leo XIV is not merely retreating to retrieve past answers in response to the precarious conditions facing today's labourers. Like a good scribe who brings out of the house treasury what is new and what is old (Mt. 13:52), he retreats to address the present social question and to make great strides towards the future of opportunity and the challenges posed by AI. In this article, we focus on the social consequences of Industry 4.0 and AI's impact on human dignity, justice and labour, with a specific discussion of the positive and negative effects of AI on the African labour context.

**Keywords:** Artificial Intelligence (AI), human dignity, labour justice, evangelising mission, dignity of work.

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**Introduction**

The conclave that gathered in the Sistine Chapel in Rome on Wednesday, 7 May 2025, elected Cardinal Robert Francis Prevost as the 267th Roman Catholic Pope on Thursday, 8 May 2025. The formators in the Jesuit community at *L'Institut de Theologie de la Compagnie de Jesu* (ITCJ) customarily gather for a social hour before the evening meal every Thursday. The social hour on Thursday, 8 May 2025, was exceptional because of the joyful news from Rome of the election of the new successor of St. Peter, Pope Leo XIV. The choice of the name Leo XIV by the new Pope led to a heated debate about the reasons behind it. Moral theologians on one side of the aisle were quick to point out that the name signalled a continuation of Pope Leo XIII's *Rerum Novarum* Catholic social teaching agenda. On the other hand, a historian asked why Leo XIII, when there have been other Popes who chose to be known as Leo, from Leo the Great to Leo XII? Others followed the debate quietly, wisely waiting for the new Pope to provide the answer.

Pope Leo XIV settled these speculations two days after his election, on 10 May 2025, after Mass in the Sistine Chapel. In his address to the College of Cardinals, he asserted that there were various reasons for the choice of Leo XIV, but he chose it "mainly because Pope Leo XIII in his historic Encyclical *Rerum Novarum* addressed the social question in the context of the first great industrial revolution."[1] He went on to say that in contemporary society, "the Church offers to everyone the treasury of her social teaching in response to another industrial revolution and to developments in the field of artificial intelligence that pose new challenges for the defence of human dignity, justice and labour."[2]

The fourth industrial revolution (also known as Industry 4.0) forms the context in which Leo XIV articulates the social question and identifies the challenges that artificial intelligence (AI) poses for "evangelical principles that have always inspired and guided the life and activity of God's family."[3] In singling out "human dignity, justice and labour" as key evangelical principles, Leo XIV signals a return to Leo XIII, for whom the dignity of the worker, and by extension the dignity of work, compelled him to address the social question of his time. Leo XIII wrote Rerum Novarum, considered the Magna Carta of

[1] Pope Leo XIV, *Address to the College of Cardinals*, 10 May 2025, https://www.vatican.va/content/leo-xiv/en/speeches/2025/may/documents/20250510-collegio-cardinalizio.html.

[2] Pope Leo XIV, *Address to the College of Cardinals.*

[3] Pope Leo XIV, *Address to the College of Cardinals.*

the Church's social teaching,[4] in defence of the rights of workers, especially women and children, due to the negative effects of Industry 1.0 and partly Industry 2.0.[5] It is worth noting from the outset of this article that Leo XIV is not merely retreating to retrieve past answers in response to the precarious conditions facing today's labourers. Like a good scribe who brings out of the house treasury what is new and what is old (Mt. 13:52), he retreats to address the present social question and to make great strides towards the future, with its opportunities and the challenges posed by AI.

In this article, we focus on the social consequences of Industry 4.0 and AI's impact on human dignity, justice and labour. We then narrow the discussion to AI's positive and negative effects on the African labour context, concluding with a hopeful anticipation of Industry 5.0, where the Catholic Church and AI systems developers and users can work together for integral human development.

**1. Industrial Revolutions**

Ofir Levi offers a succinct and useful categorisation of industrial revolutions and their socio-economic effects.[6] Taking "a closer look at the transition from the steam engine era to human-centric technologies,"[7] Levi describes the late 18th century first phase of the industrial revolution, which replaced water-powered factories with steam engines invented by James Watt, as a leader in "the growth of textiles, iron, and coal industries."[8] Fueled by coal,[9] steam engines propelled Industry 1.0, the first industrial revolution phase, leading to urbanisation, creation of the middle working class, increased industrial production and their attendant "consumer markets and international trade."[10] Despite the positive aspects of Industry 1.0, Levi identifies poor working conditions, child labour, and environmental pollution as

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[4] Edward P. DeBerri, James E. Hug, Peter J. Henriot, and Michael J. Schultheis, *Catholic Social Teaching: Our Best Kept Secret*, 4th ed., rev. and exp. (Maryknoll, New York: Orbis Books, 2003).

[5] Ofir Levi, "Industrial Revolution: From Industry 1.0 to Industry 5.0," 2 July 2024, https://www.coretigo.com/industrial-revolution-from-industry-1-0-to-industry-5-0/.

[5] Levi, "Industrial Revolution."

[6] Levi, "Industrial Revolution."

[7] Levi, "Industrial Revolution."

[8] Levi, "Industrial Revolution."

[9] Thomas A. Shannon, "Commentary *on Rerum Novarum (The Condition of Labor)*," in *Modern Catholic Social Teaching: Commentaries and Interpretations*, edited by Kenneth R. Himes (Washington, D.C.: Georgetown University Press, 2005), 128.

[10] Levi, "Industrial Revolution."

its negative consequences.[11] In addition, as pointed out by Thomas A. Shannon, population increase meant that labour was in more supply than needed, leading to exploitation of workers with meagre wages, sexual solicitation of women by managers, and up to 15 working hours a day with no rest, scarce housing, and no land for food crops.[12] We will come to these aspects in the section addressing the social question raised by Leo XIII's Encyclical letter, *Rerum Novarum*.

The second phase of the Industrial Revolution, categorised by Levi as Industry 2.0, began in the late 19th and early 20th centuries. With the increasing use of electricity and the automotive moving assembly line invented by Henry Ford in 1913, the automotive industry started to produce cars *en masse,* thus making mobility and transportation faster. Industry 2.0 also experienced enhanced communication and connectivity with the invention of the telephone and the radio by Alexander Graham Bell and Guglielmo Marconi respectively.[13] This phase witnessed economic growth, increased demand for skilled labour which also meant retrenchment of unskilled workers and the replacement of handicrafts with "factory-based employment."[14] The unionisation of workers gained prominence through workers' unions demanding better working conditions and rights.

The third phase of the Industrial Revolution, which Levi designates as Industry 3.0, emerged in the 1950s with the use of "computers, automation and digital technology."[15] Also known as "the Digital Age,"[16] Industry 3.0 saw the introduction of robotics in industrial manufacturing, significantly reducing demand for human labour. Consequently, labour costs were significantly cut, witnessing increased productivity, and making global trade faster due to technological communication innovations.[17]

The fourth Industrial Revolution phase started at the dawn of the 21st century. Designated Industry 4.0 by Levi, this phase is characterised by "the integration of smart technologies, such as the Internet of Things

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[11] Levi, "Industrial Revolution."

[12] Shannon, "Commentary *on Rerum Novarum*," 129, 134.

[13] Levi, "Industrial Revolution."

[14] Levi, "Industrial Revolution."

[15] Levi, "Industrial Revolution."

[16] Claude Shannon is known as the father of digital age. Shannon's development of the bit and his theories on information laid the groundwork for modern computers and digital technology.

[17] Levi, "Industrial Revolution."

(IoT), artificial intelligence (AI), and big data analytics."[18] Founded in 1987 by David Martin and Nancy Knowlton, SMART Technologies' innovative approach to industrial production has led to what Levi calls "real-time monitoring, data-driven decision-making, and enhanced automation."[19] AI has positively impacted "interpersonal relationships, education, work, art, healthcare, law, warfare, and international relations."[20] In addition through the use of "AI-driven analytics" and "smart IoT" factory sensors, Industry 4.0 has brought incredible changes in industrial production, reduced production costs and enhanced the automotive industry through the introduction of autonomously driven vehicles which include the use of drones for the delivery of medicines in remote areas.[21] These positive aspects of AI notwithstanding, we must guard against unethical use and potential abuse of such innovations as foreseen by Pope John Paul II in *Laborem Exercens* when he warned that these technological changes "may perhaps mean unemployment" to "millions of skilled workers…or the need for retraining."[22] Pope Leo XIV is therefore rightly concerned with industry 4.0 and AI's effect on human dignity, justice, and labour, to which we now turn.

## 2. Artificial Intelligence and Human Dignity

Leo XIII reminds employers that "workpeople are not their slaves; that they must respect in every man his dignity as a man [sic] and as a Christian." (*Rerum Novarum*, no. 16) As subjects of work and those who make work possible, human beings cannot be treated as instruments of work or machines. They cannot be instrumentalised and owned, for they are owners by virtue of their God-given dignity.[23] Consequently, to be human today, in the face of artificial intelligence, must necessarily include "scientific and technological abilities."[24] However, just as Leo

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[18] Levi, "Industrial Revolution."

[19] Levi, "Industrial Revolution."

[20] Dicastery for the Doctrine of the Faith and Dicastery for Culture and Education, *Antiqua et Nova: Note on the Relationship between Artificial Intelligence and Human Intelligence*, no. 4, 28 January 2025, https://www.vatican.va/roman_curia/congregations/cfaith/documents/rc_ddf_doc_20250128_antiqua-et-nova_en.html.

[21] Levi, "Industrial Revolution."

[22] Pope John Paul II, Encyclical Letter on Human Labour, *Laborem Exercens*, 14 September 1981, no. 1, in *Catholic Social Thought: A Documentary Heritage*, edited by David J. O'Brien and Thomas A. Shannon (Maryknoll, New York: Orbis Books, 1992), 352-392 at 353.

[23] Pope John Paul II, *Laborem Exercens*, no. 7.

[24] Dicastery for the Doctrine of the Faith and Dicastery for Culture and Education, *Antiqua et Nova*, no. 2.

XIII argued that the social question of his time was not "merely an economic one, [but]…above all, a moral and religious matter," to "be settled by the principles of morality and according to the dictates of religion,"[25] AI must ensure that technology remains at the service of humanity and not vice versa. It must indeed be "human centred," and "ethical by design."[26] Privileging the human person at the centre of technological innovation implies aligning ethical values with appropriate technology to support integral human development. This way, work becomes an expression of human dignity, and one from which it is also derived.[27] Paul Tighe enumerates several ethical values that AI designers and users must consider. They are "inclusion, transparency, safety, fairness, privacy and reliability."[28]

Pope Leo XIV's call for an ongoing conversation about Artificial Intelligence and its effects on human dignity addresses a key aspect of today's social question. It also witnesses the continuity of his predecessor's call for a Church that reaches out to and engages the world in mutual respect, in search of solutions to shared challenges. The Church, through its Dicastery for the Doctrine of the Faith and the Dicastery for Culture and Education, identifies two main anthropological and ethical challenges arising from the use of AI. On the anthropological level AI aims to "*imitate the human intelligence that designed it*."[29] This anthropological crisis posed by AI raises an ethical issue regarding what constitutes truth since generative AI is capable of replicating "texts or images indistinguishable from human compositions."[30]

In an introduction to their White Paper on AI and the Future of Work in Africa, Jackie O'Neill et al., assert that "Generative AI refers to a subset of artificial intelligence that involves systems capable of creating

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[25] Pope Leo XIII, Encyclical Letter *Graves de Communi Re*, January 18, 1901, no. 11, https://www.vatican.va/content/leo-xiii/en/encyclicals/documents/hf_l-xiii_enc_ 18011901_graves-de-communi-re.html.

[26] Paul Tighe, "A Word from Rome," in José Roger Flahaux, Brian Patrick Green, and Ann Gregg Skeet, *Ethics in the Age of Disruptive Technologies: An Operational Roadmap* (Santa Clara, California: The Institute for Technology, Ethics and Culture - the Markkula Center for Applied Ethics at Santa Clara University, 2023), 7.

[27] Pope John Paul II, *Laborem Exercens*, no. 1. See also Edward P. DeBerri et al., *Catholic Social Teaching*, 84.

[28] Tighe, "A Word from Rome," 7.

[29] Dicastery for the Doctrine of the Faith and Dicastery for Culture and Education, *Antiqua et Nova*, no. 3.

[30] Dicastery for the Doctrine of the Faith and Dicastery for Culture and Education, *Antiqua et Nova*, no. 3.

new content, such as images, text, or even entire datasets. Unlike traditional AI, which relies on explicit programming, generative models are trained on large datasets to learn patterns and generate novel outputs."[31]

The second challenge posed by AI comes from its design which enables it "to learn and make certain choices autonomously."[32] Also known as automated expert systems, machine learning and deep learning pose "fundamental questions about ethical responsibility and human safety," with far-reaching anthropological concerns. AI's ability to operate independently of humanity makes the Church to ask, "what it means to be human and the role of humanity in the world."[33]

AI provides many opportunities as pointed out earlier by Levi. Among these benefits is automation, which allows for real-time search engines to provide needed answers to posed questions for researchers, making it possible for auto-driven cars and other machines, including robots. But at the same time, as pointed out by Flahaux, Green and Skeet, "autonomous weapons" [34] which include drones and Unmanned Aerial Vehicles (UAVs) are now being used in technological warfare, at the degradation of human dignity. Hence, rather than leave the technological world to its own devices, akin to Adam Smith's invisible hand in the free market economy, ethicists must work together with tech innovators to direct the innovation of "responsible technologies."[35] The moral alignment of AI remains critical because human dignity and responsibility cannot be delegated to machines no matter how advanced technology has become. Conscience, freedom to do good and avoid harm, responsible, ethical, intelligent and accountable use of technology, and ensuring that technology serves humanity and the environment in which we live remains the prerogative of human beings.[36] So, "Those who use AI to accomplish a task and follow its results create a context in which they are ultimately responsible for the power they have delegated. Therefore, insofar as AI can assist humans

[31] Jacki O'Neill, et al., "AI and the Future of Work in Africa White Paper," 05, November 15, 2024, https://research.ebsco.com/linkprocessor/plink?id=98a8e59e-9279-3bcd-b0a4-2c8d0f248961.

[32] Dicastery for the Doctrine of the Faith and Dicastery for Culture and Education, *Antiqua et Nova*, no. 3.

[33] Dicastery for the Doctrine of the Faith and Dicastery for Culture and Education, *Antiqua et Nova*, no. 3.

[34] Flahaux, Green, and Skeet, *Ethics in the Age of Disruptive Technologies*, 11.

[35] Flahaux, Green, and Skeet, *Ethics in the Age of Disruptive Technologies*, 12.

[36] Dicastery for the Doctrine of the Faith and Dicastery for Culture and Education, *Antiqua et Nova*, no. 39.

in making decisions, the algorithms that govern it should be trustworthy, secure, robust enough to handle inconsistencies, and transparent in their operation to mitigate biases and unintended side effects."[37]

**3. Justice in Artificial Intelligence**

Leo XIII observed that the first industrial revolution replaced "the workmen's guilds" with machines leaving no alternative organisations for workers or production in their ownership. This disruption of workers' associations rendered the working-class poor and at the mercy of the owners of newly established industries who grew richer at the expense of the working class. The ensuing injustice rendered employees the bearers of unjust contracts under appalling working conditions described by Leo XIII as "a yoke little better than slavery itself."[38] It is this condition of labour or the condition of the workers that remains central to Pope Leo XIII's social question. But it is equally an enduring question in subsequent social encyclicals in a quest to make "life more human."[39] Thus, *Rerum Novarum*, while raising the social question, also seeks to offer "some remedy…for the misery and wretchedness which press so heavily …on the large majority of the very poor." (*Rerum Novarum*, no. 2)

Central to social justice within the context of work remains the question "of just remuneration for the work done."[40] It remains central because of its fundamental rootedness in the overall human rights and duties, but more specifically in human rights as they relate to the rights of workers, as we will discuss later. The employer-employee relationship marked by unjust wages and the rich and poor relationship hinged upon handouts rather than justice, would inevitably and with time lead to socio-economic revolutions.[41] Although socialism proposed state ownership of the means of production including land as an equaliser between the rich and the poor, the employed and the unemployed, and a way forward in addressing unjust relations between the industrial owners (employers) and employees, Leo XIII regarded this form of justice as unjust for it would deprive just owners of their right to private property and create disharmony in society.

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[37] Dicastery for the Doctrine of the Faith and Dicastery for Culture and Education, *Antiqua et Nova*, no. 46.

[38] Pope Leo XIII, "Encyclical Letter on the Condition of Labor, *Rerum Novarum*" no. 2, 15 May 1891, in *Catholic Social Thought: A Documentary Heritage*, 14-39 at 15.

[39] Pope John Paul II, *Laborem Exercens*, no. 3.

[40] Pope John Paul II, *Laborem Exercens*, no. 19.

[41] Shannon, "Commentary on *Rerum Novarum*," 131.

(*Rerum Novarum*, no. 3) It would also be contrary to the principle of subsidiarity and the primacy of the individuals over any State (*Rerum Novarum*, no. 6) leading to what we now call state capitalism. So, he proposes distributive justice as a strict form of justice to which each State ruler is called to adhere in attending to the needs of "each and every class." (*Rerum Novarum*, no. 27)

Distributive justice would also apply to the worker's right to private property in the form of land to which they could invest and earn their living. This in his estimation, would bridge the gap between the rich employers and their employees and help minimize the tension between the two classes. (*Rerum Novarum*, no. 35) Distributive justice is a minimum requirement for justice for it ensures that everyone receives his or her due. In the context of AI, distributive justice calls upon the corporate industry to meet this same threshold of justice where the minimum ethical standards which guarantee fairness in business dealings apply to producers and consumers alike.[42] Informed by ethical convictions that "Injustice violates human dignity and the common good," the promotion of justice will include "access, diversity, equity, and inclusion with respect to the resources necessary for human and environmental well-being and sustaining peace."[43] In sum, justice will take the form of solidarity among workers to reclaim their position as innovators, doers, and moral agents in the context of work.[44] Within the African context combating AI ethnic bias and discrimination in order to foster unity in diversity that the continent represents will remain key.[45]

Leo XIII was realistic that contributive justice must recognise the degree to which people of diverse capabilities and resources can contribute to the wellbeing of society. In recognition of this fact, he proposed that contributive justice must always go hand in glove with distributive justice so that the poor and marginalised, even those who cannot contribute for no fault of their own, such as children, the elderly and the differently abled, can have their share of the commonwealth.

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[42] José Roger Flahaux, Brian Patrick Green, and Ann Gregg Skeet, *ITEC Principles and How to Use Them: Anchoring, Guiding, Specifying and Action* (Institute for Ethics, Technology and Culture – Markkula Center for Applied Ethics: Santa Clara University, 2023), 4, accessed on 15 May 2025, https://www.scu.edu/media/ethics-center/itec/ITEC-Principles---062123-.pdf.

[43] Flahaux, Green, and Skeet, *ITEC Principles and How to Use Them*, 4.

[4444] Pope John Paul II, *Laborem Exercens,* no. 8.

[45] Getachew Hailemariam Mengesha, Elefelious Getachew Belay, and Rachel Adams, "Social Justice Considerations in Developing and Deploying AI in Africa," *Data & Policy* 6 (2024): e65-1, https://doi.org/10.1017/dap.2024.73.

(*Rerum Novarum*, no. 27)[46] In places where AI is replacing human labour thereby denying more people the opportunity to contribute meaningfully to Industry 4.0, distributive justice becomes even more imperative. But beyond distributive justice, it remains equally important that the right to work for everyone capable of working is not infringed, for it is a matter of justice and human dignity that people work in safe, dignified conditions.

Justice is critical to Pope Leo XIV's leadership. In his own words to the diplomatic corps, he makes it clear that at "this time of epochal change, the Holy See cannot fail to make its voice heard in the face of the many imbalances and injustices that lead, not least, to unworthy working conditions and increasingly fragmented and conflict-ridden societies. Every effort should be made to overcome the global inequalities – between opulence and destitution – that are carving deep divides between continents, countries and even within individual societies."[47]

Justice must also consider decision-making processes that respect the principle of subsidiarity. So, state intervention in religious, family, industrial, social, and economic spheres should be guided by "the idea of making decisions at the governance level closest to those affected and only going to higher levels if the common good and human dignity and well-being requires it."[48] These decisions cannot be adequately made using artificial intelligence. A case in question may be the use of AI in legal litigations. AI may logically analyse a legal dispute, but to reach a sound judgement, a judge relies not only on logic but also on the context and circumstances surrounding the case. AI cannot take context into consideration and so it will always remain at the service of human reasoning, intelligence and conscience to make ethical judgements. This way, human dignity will be served in a constant search for a more just society.

Industry 4.0 and the development of AI pose similar threats to today's industrial workers and any other employees in highly industrialised countries that have uncritically embraced AI. With robotics replacing human labour in libraries, airports, restaurants and

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[46] See also Dicastery for the Doctrine of the Faith and Dicastery for Culture and Education, *Antiqua et Nova*, no. 34.

[47] Pope Leo XIV, *Audience to the Members of the Diplomatic Corps Accredited to the Holy See*, 16 May 2025, https://www.vatican.va/content/leo-xiv/en/speeches/2025/may/documents/20250516-corpo-diplomatico.html.

[48] Flahaux, Green, and Skeet, *ITEC Principles and How to Use Them*, 5.

hotels, and in massive motor and other industries, employees formerly enjoying the fruits of their labour are increasingly rendered jobless as unfettered competition, economic power blockers, and profit-makers sideline them. The justice we seek in the AI era is not one that satisfies human desires and needs while neglecting the environment in which we live – our common home, as Pope Francis calls it. It is rather the justice that employs rational intelligence, "human reason and technical capabilities" responsibly "in stewardship of the created world."[49] Indeed, "If we want to have a healthy organization – including its owners, leaders, employees, customers, and all stakeholders – we need to think comprehensively in terms of the well-being of the society in which we all live as well as the well-being of the environment, which is the precondition for human existence and flourishing."[50] But for justice to remain evangelical it must be rooted in justice and truth. "Truth," says Pope Leo XIV, "…does not create division, but rather enables us to confront all the more resolutely the challenges of our time, such as migration, the ethical use of artificial intelligence and the protection of our beloved planet Earth."[51]

**4. Artificial Intelligence and Labour**

Leo XIII esteemed labour so highly as possessing a humanizing value. It provided the labourer with an opportunity to invest his or her earnings in land or elsewhere with the freedom to dispose of the investment in favour of some other property. Once invested, the amount becomes part of the wage earner, so dispossessing him or her of it is unjust. This is because it would divest him or her from the ability to transcend the hand-to-mouth existence as other animals do and invest in things of lasting value which include immovable assets such as land, housing, and real estate (*Rerum Novarum*, no. 4-5). However, as John Paul II reminds us the right to private property must be construed "within the broader context of the right common to all to use the goods of the whole of creation: The right to private property is subordinated to the right to common use, to the fact that goods are meant for everyone."[52] In addition, private property must no longer be understood in material or tangible reality alone because intellectual

[49] Dicastery for the Doctrine of the Faith and Dicastery for Culture and Education, *Antiqua et Nova*, no. 1.

[50] Flahaux, Green, and Skeet, *Ethics in the Age of Disruptive Technologies*, 20.

[51] Pope Leo XIV, *Audience to the Members of the Diplomatic Corps.*

[52] Pope John Paul II, *Centesimus Annus*, no. 32.

property or what he refers to as "the possession of know-how, technology and skill," are highly prized today.[53]

Leo XIII reminds the employer not to regard labour as something shameful but as "an honorable employment, enabling a man to sustain his life in an upright and creditable way; and that it is shameful and inhuman to treat men like chattels to make money by, or to look upon them merely as so much muscle or physical power." (*Rerum Novarum*, no. 16) At the same time Leo XIII states that the Church's "desire is that the poor…should rise above poverty and wretchedness, and should better their condition in life; and for this it strives." (*Rerum Novarum*, no. 23). To be able to appreciate work as laudable we must ground it in God through whose creative work of love and rest humanity and other creatures came to be. So, in working and resting humanity shares in the creative genius of God and truly becomes God's image and likeness. This "spirituality of work" is essential in an increasingly secularising world because it provides meaning to work beyond ideological socialist or capitalist conceptions of work.[54]

Since the American computer scientist John McCarthy launched a programme to design "machines capable of performing tasks typically associated with the human intellect and intellectual behaviour…language translations, predictable weather patterns, image classifications, responding to questions or producing visual content, are now part of the day-to-day human interactions using "narrow AI."[55]

By relying "on statistical reference rather than logical deductions," AI is designed to "perform tasks formally done by humans and even surpass human capabilities in specialised tasks such as data analysis, image recognition, and medical diagnosis."[56] This poses a challenge in the job market, especially for repetitive tasks such as data entry and processing, commercial advertisements, online customer services, invoice processing, speech recognition, language translations, which machines can easily learn and do, thereby leading to "job displacement, emphasizing the urgent need for reskilling initiatives to prepare workers for future job markets."[57] With the envisioned design of

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[53] Pope John Paul II, *Laborem Exercens*, no. 14.

[54] Pope John Paul II, *Laborem Exercens*, nos. 24-27.

[55] Dicastery for the Doctrine of the Faith and Dicastery for Culture and Education, *Antiqua et Nova*, no. 8.

[56] Dicastery for the Doctrine of the Faith and Dicastery for Culture and Education, *Antiqua et Nova*, no. 9.

[57] Reginald Ndwamai and Doreen Morukhu, "The Future of Employment: Embracing Change and Shaping Opportunities in a Transforming Workforce in South

"'Artificial General Intelligence' (AGI)—a single system [is] capable of operating across all cognitive domains and performing any task within the scope of human intelligence. Some even argue that AGI could one day achieve the state of 'superintelligence,' surpassing human intellectual capacities, or contribute to "super-longevity" through advances in biotechnology."[58] To allay the fear associated with advances in AI technologies, the Church distinguishes the intelligence in AI from that accorded human beings. While AI can "*perform tasks*" it has no "ability to *think*."[59] Indeed, "AI cannot currently replicate moral discernment or the ability to establish authentic relationships."[60] This ability remains a preserve of human beings and wisdom demands that such ability remain of paramount importance in the governance of the intricacies of AI in search of reliable and accurate information. In addition, "the development of such technological advancements must go hand in hand with respect for human and social values, the capacity to judge with a clear conscience, and growth in human responsibility."[61] As such, "AI should not be seen as *an artificial form* of human intelligence but as *a product* of it."[62] I must add that designating intelligence to machines is itself ethically questionable. It is an anthropological aberration for machines cannot reason let alone act intelligently.

The fact that machine learning enables them to do work faster than human beings does not render them superhuman. In effect machines have always facilitated work. For instance, cars move faster than human beings and planes do the same at a supersonic speed, but they have never been regarded as superhuman. This distinction is critical because even as we envision creating responsible technologies we must keep in mind that the ethical responsibility for the proper use of technologies

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Africa," *IAHRW International Journal of Social Sciences Review* 13, no. 1 (March 1, 2025): 68, https://research.ebsco.com/linkprocessor/plink?id=d1835112-e7cc-3578-bdde-d46c83454101.

[58] Dicastery for the Doctrine of the Faith and Dicastery for Culture and Education, *Antiqua et Nova*, no. 9.

[59] Dicastery for the Doctrine of the Faith and Dicastery for Culture and Education, *Antiqua et Nova*, nos. 12, 30, 34.

[60] Dicastery for the Doctrine of the Faith and Dicastery for Culture and Education, *Antiqua et Nova*, no. 32.

[61] Pope Leo XIV, *Message of the Holy Father, Signed by the Cardinal Secretary of State Pietro Parolin, On the Occasion of the AI for Good Summit 2025*, Geneva, 10 July 2025, https://www.vatican.va/content/leo-xiv/en/messages/pont-messages/2025/documents/20250708-messaggio-aiforgood-ginevra.html.

[62] Dicastery for the Doctrine of the Faith and Dicastery for Culture and Education, *Antiqua et Nova*, no. 35.

rests with moral agents not technologies. AI must be employed as "*a tool*" albeit a "complex" one given its autonomous dimension.[63] In this regard, it must be used ethically for integral human development.[64] As such AI must be governed by the same ethical principles and regulatory frameworks that govern any other socially responsible entity. These principles and frameworks include transparency, inclusiveness, fairness, non-algorithmic racial biases and non-algorithmic discrimination, safety and user-friendliness, accountability, data protection and privacy, and integrity, among others.[65] In the educational context, the use of AI must comply with academic integrity standards governing research and publications.

As a product of human intelligence, AI "has the potential to enhance expertise and productivity, create new jobs, enable workers to focus on more innovative tasks, and open new horizons for creativity and innovation."[66] Such opportunities are evident in "the gig economy"[67] which became prominent at the height of the Covid-19 pandemic as workers were allowed to work from home and accomplish specific tasks assigned to them within a specified time. For instance, the use of AI generative technologies such as generative pre-trained transformers (GPT) has enabled companies and researchers to have quick access to information and data analysis thereby enhancing organizational and educational performances. The flip side of this technological advancement as it relates to work is that it can "*deskill* workers, subject them to automated surveillance, and relegate them to rigid and repetitive tasks."[68] In addition, "The need to keep up with the pace of technology can erode workers' sense of agency and stifle the innovative abilities they are expected to bring to their work."[69] In addition, automation in the gig economy offers part-time work with no

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[63] Pope Francis, *Address at the G7 Session on Artificial Intelligence,* Borgo Egnazia (Puglia),14 June 2024. https://www.vatican.va/content/francesco/en/speeches/2024/june/documents/20240614-g7-intelligenza-artificiale.html.

[64] Dicastery for the Doctrine of the Faith and Dicastery for Culture and Education, *Antiqua et Nova*, no. 6.

[65] See Mark Anthony Camilleri, "Artificial Intelligence Governance: Ethical Considerations and Implications for Social Responsibility, *Expert Systems* (2024):6-15. 41(7), e13406, https://doi.org/10.1111/exsy.13406.

[66] Dicastery for the Doctrine of the Faith and Dicastery for Culture and Education, *Antiqua et Nova*, no. 66.

[67] Ndwamai and Morukhu, "The Future of Employment," 68.

[68] Dicastery for the Doctrine of the Faith and Dicastery for Culture and Education, *Antiqua et Nova*, no. 67.

[69] Dicastery for the Doctrine of the Faith and Dicastery for Culture and Education, *Antiqua et Nova*, no. 67.

guaranteed job security and no employment benefits, such as health insurance or retirement packages.[70] As was the experience in Industry 2.0 where industrialisation and economic growth led to loss of jobs for unskilled labourers and in fact partly accounts for the abolition of slave trade so that people would stay at home and produce raw materials for the growing industrial production, Industry 4.0 is witnessing the elimination of some jobs that were formally performed by humans. This experience is posing a threat to migrant workers who are being told to voluntarily repatriate or risk deportation or imprisonment. In such cases rather than complementing human labour, AI risks rendering human labour inutile and making an already massive gap between the rich and the poor even bigger as corporations in possession of AI technology dictate economic terms.

**5. Artificial Intelligence in the African Context**

The African reality is at once confounded by the challenges of the first industrial revolution where new industries emerge often without taking into consideration environmental impact assessments let alone the rights of workers employed in those industries. Globally, in the words of Pope Leo XIV, "approximately 2.6 billion persons still lack access to communication technologies."[71] In the African context, as indicated earlier, with over 80% African labourers in rural areas confronted by limited internet connectivity, lack of electricity, unaffordable smartphones, and limited technology know how, AI may be a concern for the future and not a priority.[72] In these situations, the words of John Paul II bear repeating for "where land is still the central element in the economic process, but those who cultivate it are excluded from ownership and are reduced to a state of quasi-servitude,"[73] integral human development remains an ardent priority. Land grabbing for biofuel, natural resource extraction, intensive agriculture, including floriculture, often without due regard for the workers' rights, continues to relegate labour behind capital in many African countries.

Moreover, "the performance of Generative AI models depends on the amount and quality of training data, yet the majority of the training data for existing generative AI models is sourced from the predominantly English-speaking Global North and as such does not

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[70] Ndwamai and Morukhu, "The Future of Employment," 68.

[71] Pope Leo XIV, *Message of the Holy Father, Signed by the Cardinal Secretary of State Pietro Parolin.*

[72] O'Neill, et al., "AI and the Future of Work in Africa White Paper," 23-24.

[73] John Paul II, *Centesimus Annus*, no. 33.

well represent African social and cultural realities."[74] If uncritically embraced, the culturally biased use of generative AI risks widening "existing systemic inequalities"[75] between industrialised and industrialising countries and aggravating ethnic conflicts in Africa. So, as proposed by Getachew Hailemariam Mengesha, Elefelious Getachew Belay, and Rachel Adams, AI ethics must consider "Respect for Diversity" and "Ethnic Neutrality" as its critical components in the African context.[76] Respect for diversity allows for the spirit of *ubuntu* which regards an individual's dignity within the larger scope of communal relationships. Ethnic neutrality fosters the spirit of *ubuntu* which does not regard one ethnic group as superior to others but insists on one's ethnic identity that can appreciate and live in harmony with people of other ethnic identities. It is this interconnectedness that AI ethics must foster, as opposed to mere automation and autonomous technologies, which mirror Western utilitarian individualism.

In addition, since establishing industries in Europe or North America faces scrutiny several of the so-called investors turn to emerging economies in countries with laxity of law enforcement and abundance of cheap labour to set up the types of industries reminiscent of Industry 1.0 and Industry 2.0 that are not using AI but exploiting cheap labour. To bridge the existing economic imbalance and inequality and overcome neocolonial tendencies, traditional AI and generative AI will require robust ethical and legal frameworks in the AI engineered economic sector.

Endowed with a bustling youthful population and increasing urbanization, African cities and regions are witnessing growing construction industry for housing, tarred road networks, and mechanized farming to feed the growing population. However, it is not uncommon to see unskilled labourers carrying bags of cement and buckets of sand up the steps of a storey building under construction up to the fifth level. The same applies to those employed in road construction who wheel sand and cement and artisan miners who work without any bodily protection, thereby risking contracting respiratory complications. In rural farms farmers still use hand hoes and cattle-driven ploughs for cultivation, often barefoot and exposed to health hazards. In the light of this context then, it remains imperative that the rights of workers championed by Leo XIII and subsequent pontiffs

[74] O'Neill, et al., "AI and the Future of Work in Africa White Paper," 1.
[75] O'Neill, et al., "AI and the Future of Work in Africa White Paper,"
[76] Mengesha, Belay, and Adams, "Social Justice Considerations," e65-9.

which include stipulated working hours, just living wage (not merely contractually agreed upon), formation of worker's associations, protection from injuries, the right to rest, be accorded their rightful place.[77] To this set of rights, John Paul II adds the workers' entitlement to health insurance and insurance against work-related accidents, retirement benefits and pension, as well as "the right to a working environment and to manufacturing processes which are not harmful to the workers' physical health or to their moral integrity."[78]

The above critical observations notwithstanding, it is important to bear in mind that some workers' associations have now moved online, using social media platforms such as WhatsApp, in the case of drivers and food delivery workers in South Africa, and Uber rivals or alternatives in Kenya. The challenge is that while the youth can organise digitally and form strong unions and associations there is a lack of a legal framework to defend them in case of legal challenges.[79] This lacuna often leads to street demonstrations and destruction of public and private property. Yet, as Pope John Paul II reminds us, workers' associations and unions remain "a mouthpiece for the struggle for social justice, for the just rights of working people in accordance with their individual professions."[80]

Despite a booming mining industry in several African countries, young people working day and night as artisan miners, drivers, carriers, etc., expose themselves to hazardous situations. Indeed, some lose their lives in unsafe mines and quarries. Often with no rights and no associations, these young people are left to their own devices, which can endanger their lives and their families' livelihoods when a mine collapses, and they die unaccounted for. In agricultural and horticultural farms, exposure to toxic pesticides is not uncommon, leading to strikes in pursuit of justifiable demands for laws to protect them from harmful toxins. In this situation, Leo XIII's call for the right to protection (*Rerum Novarum*, no. 29 and 30) must include protection from harm, the lack of which will lead to constant strikes and loss of time and productivity, as is increasingly evident in most African countries.

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[77] Cf. Leo XIII, *Rerum Novarum,* 31-44.

[78] Pope John Paul II, *Laborem Exercens*, no. 19.

[79] Christine Bischoff, Ken Kamoche, and Geoffrey Wood, "The Formal and Informal Regulation of Labor in AI: The Experience of Eastern and Southern Africa," *ILR Review* 77, no. 5 (October 1, 2024): 830, 832, doi:10.1177/00197939241278956c.

[80] John Paul II, *Laborem Exercens*, no. 20.

Moreover, with some African countries turning towards the blue economy, there is a need to ensure the safety of fishermen and women. Strong and turbulent waves have led to untold deaths as small fishing boats capsize in plain sight. With investment in blue economy, such youths risk losing livelihoods as modern fishing boats replace wooden ones and as investors seek skilled fishermen and women to navigate lakes, seas, and oceans in search for a big and lucrative catch. How artificial intelligence responds to these challenges within the African context remains to be seen.[81] But at the same time, within Africa, there is an emerging and increasing use of AI in the tech industry, where an emerging number of African tech engineers are innovatively and increasingly embracing AI in several sectors. These sectors include pastoralism, banking, the blue economy, research and publications. Since most of the population in Africa is rural, "AI could also help to revolutionise agriculture in Africa, a key sector for most countries across the continent, by accelerating precision farming, improving crop yields and sustainable farming practices, enhancing value and supply chains, expanding access to export markets, and boosting the sector's contribution to GDP."[82] This could help mitigate rural-urban migration mostly caused by "unremitting and sometimes exhausting physical effort and a lack of appreciation on the part of society, to the point of making agricultural people feel that they are social outcasts…"[83] Improved agriculture and respect for the rights of farmers could lead to reverse youth migration from urban to rural areas since most youth who migrate to urban centres encounter dehumanising living conditions in slums and informal settlements. While adding value to these sectors, the use of AI technologies has also led to loss of jobs as is the case within South Africa's banking sector.[84] Call centres might face a similar job loss experience as AI automated calls and machine learning replaces people in the employment sector.[85] So, governments and private sector employers should "improve the quality of the work produced and support and enhance the creativity and value of workers,

[81] O'Neill, et al., "AI and the Future of Work in Africa White Paper," 2 and 6.

[82] O'Neill, et al., "AI and the Future of Work in Africa White Paper," 10.

[83] John Paul II, *Laborem Exercens*, no. 21.

[84] Bischoff, Kamoche and Wood, "The Formal and Informal Regulation of Labor in AI," 828.

[85] Bischoff, Kamoche and Wood, "The Formal and Informal Regulation of Labor in AI," 829.

rather than using AI to automate work – as this will inevitably result in a race to the bottom."[86]

Addressing industrial waste that pollutes freshwater sources should not be overlooked as we move towards AI. How can AI address these age-old challenges arising from an increasingly consumerist African society, driven by urbanisation and population growth? The shipment and sale of used cars from the so-called industrialised countries to Africa that no longer meet environmental regulations also raise ethical questions. Can AI tackle this challenge? As the automotive industry embraces AI-driven technologies in car manufacturing, how can it creatively repurpose old-fashioned cars without dumping them on the African markets? Answers to these questions require robust regulatory frameworks that each African state must put in place or implement, if they already exist in some states.

**Conclusion**

As the Industrial Revolution looks towards Industry 5.0, meant, in Levi's words, to creatively bridge the existing lack of collaboration "between humans and machines,"[87] thereby maximising the potential for both, the Church stands a chance of looking towards Industry 5.0 with contribution rather than scepticism or condemnation. Aimed at enhancing "human creativity, well-being, and job satisfaction,"[88] Industry 5.0 promises what the Church has been crying for, and so it stands a chance of having a Church as its dialogue partner in an ongoing quest for realising integral human development. The potential already exists in telemedicine, which, if put to good use, can revolutionise how science and technology speak to other sectors, always in keeping with safeguarding human dignity by promoting justice and caring for our common home. We keep hope alive!

[86] O'Neill, et al., "AI and the Future of Work in Africa White Paper," 2.
[87] Levi, "Industrial Revolution."
[88] Levi, "Industrial Revolution."